

## Retrofit your diesel-powered off-road machines to keep your business competitive.



The type of solution appropriate for your application depends on the configuration of your equipment and the specific emissions targeted by applicable emissions regulations.

Your Cat Dealer can help you choose the best solution or mix of solutions for your needs. You will also get the industry's best parts availability, comprehensive warranty coverage and service you can count on.

Contact your local Cat Dealer for more information.

## Cat Emissions Reduction Options for Off-Road Machines



### 1 Cat® Engine Repowers

#### What it is:

A Cat Engine Repower removes the existing diesel engine from a piece of equipment and replaces it with a completely new or remanufactured lower-emissions Cat engine.

#### How it works:

Engine Repower solutions are available for many classes of Cat diesel engines.

Repowering an in-use machine with a new engine gives you the benefits of emissions reduction technologies not available in the past.

Where appropriate, repower engines include ACERT™ Technology. ACERT not only lowers emissions to compliant levels, it also enhances overall engine performance.

To save downtime, consider doing an Engine Repower at the same time as another major replacement or overhaul.

#### What it does:

- > May increase productivity and fuel economy
- > Reduces emissions in legacy machines
- > Extends machine life
- > Comes with a new Caterpillar Engine Warranty



### 2 Cat Engine Upgrade Group

#### What it is:

A Cat Engine Upgrade Group upgrades your existing engine using new Cat parts and components to reduce emissions.

#### How it works:

Engine Upgrade Groups utilize your current engine core. A range of upgrade options is available. All replace existing parts with new components that deliver lower emissions.

In many cases, an Engine Upgrade Group is more cost-effective than an Engine Repower.

#### What it does:

- > Brings existing engines into compliance with EPA Tier 1 or Tier 2 emissions standards
- > Saves downtime when included in a regularly scheduled engine rebuild
- > May reduce overall operating costs by improving efficiency and machine availability
- > A more affordable option for emissions reduction



### 3 Cat Oxidation Catalysts

#### What it is:

Cat Oxidation Catalysts help lower engine emissions through chemical reactions that convert carbon monoxide, hydrocarbons and aldehydes into carbon dioxide and water.

#### How it works:

A catalyst assembly—available to suit many machine applications—is installed in place of the standard muffler. Exhaust flows through a steel housing with a specially formulated catalyst. Here, chemical reactions work to minimize machine emissions.

#### What it does:

- > Carbon monoxide reduction up to 85 percent in engines up to 750 horsepower
- > Hydrocarbon reduction up to 60 percent
- > Particulate matter reduction up to 20 percent
- > Caterpillar Standard Parts Warranty applies



### 4 Cat Diesel Particulate Filters

#### What it is:

A Diesel Particulate Filter is designed to reduce emissions of particulate matter, carbon monoxide and hydrocarbons. This solution can be used to bring a range of Cat diesel engines into regulatory compliance.

#### How it works:

A series of alternately blocked channels forces exhaust gasses to flow through the channel walls, where particulates are physically captured and chemical reactions occur. Carbon monoxide and hydrocarbons are primarily converted into carbon dioxide and water. Backpressure is maintained through a process of passive regeneration that automatically removes excess particulate matter.

#### What it does:

- > Particulate matter reduction greater than 85 percent
- > Carbon monoxide reduction greater than 85 percent
- > Hydrocarbon reduction greater than 85 percent
- > Diagnostic module for continuous backpressure and exhaust temperature monitoring
- > Warning indicators and data storage for system protection

## Caterpillar Emissions Solutions.

# Proven.

Caterpillar has the right environmental solutions for your off-road machines. Backed by the reliability and performance of your Cat® Dealer, these solutions reduce emissions and are tailored to fit a wide range of diesel engines used for off-road applications.

Off-road machines that have a Caterpillar emissions reduction solution applied to them can display the decal shown below. The Cat Emissions Reduction decal is a visible promotion of your emissions reduction efforts. Inside, you'll find the right emissions solution for your equipment and job needs.



### Caterpillar Emissions Solutions

## Reduce Emissions. Stay Competitive.

Caterpillar Emissions Solutions provides the information, products and services you need to comply with emissions regulations, reduce risk and protect your business for the future.

**Contact your local Cat Dealer today**  
or visit us on the Web at:  
**[www.cat.com/EmissionsSolutions](http://www.cat.com/EmissionsSolutions)**

**CATERPILLAR®**  
TODAY'S WORK. TOMORROW'S WORLD.™

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### Cat Emissions Solutions for Off-Road Machines

# Solutions



REDUCE EMISSIONS. STAY COMPETITIVE.

**CATERPILLAR®**